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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,651	07/21/2003	Keiichi Sato	HIRA.0117	3867

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EXAMINER

COLEMAN, WILLIAM D

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 12/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/622,651

Applicant(s)

SATO ET AL

Examiner

W. David Coleman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Adams et al., U.S. Patent 6,649,138 B2.

4. Adams discloses a semiconductor device as claimed.

5. Pertaining to claim 1, Adams teaches a semiconductor nanoparticles having fluorescence properties and comprising a modifying group represented by the following general formula bound to their surfaces:

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-OY wherein Y is selected from a hydrogen atom, a metal atom, a semimetal atom, an organic group, or an organic group that is intermediated by a metal atom or a semimetal atom (column 2, lines 9-23).

6. Pertaining to claim 2, Adams teaches the semiconductor nanoparticles according to claim 1, wherein the modifying group is an -OH group (column 2, lines 18).

7. Pertaining to claim 3, Adams teaches the semiconductor nanoparticles according to claim 1, wherein the material for the core of the semiconductor nanoparticles is selected from ZnO, ZnS, ZnSe, ZnTe, CdO, US, CdSe, CdTe, HgS, HgSe, HgTe, InP, InAs, GaN, GaP, GaAs, TiO₂, WO₃, PbS, and PbSe (column 6, lines 28-30).

8. Pertaining to claim 4, Adams teaches the semiconductor nanoparticles according to claim 1, wherein the particle sizes of the semiconductor nanoparticles are monodispersed with deviations of less than 10% rms in diameter (column 6, lines 62-68 and column 7, lines 1-3).

9. Pertaining to claim 5, Adams teaches the semiconductor nanoparticles according to claim 1, wherein the semiconductor nanoparticles emit fluorescence in a narrow spectrum range of 60 nm or less in terms of the full width at half maximum (FWHM) upon the application of excitation light (column 7, lines 9-18).

10. Pertaining to claim 6, Adams teaches a method for producing the semiconductor nanoparticles according to claims 1 wherein a compound having a hydroxyl group is allowed to react with the surfaces of the semiconductor nanoparticles for stabilization (Applicant should see Spanhel et al., "Photochemistry of Colloidal Semiconductors, 20, Surface Modification and Stability of Strong Luminescing CdS Particles", Journal of American Chemical Society, vol. 109, pp. 5649-5655, 1987 which is incorporated by reference) .

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11. Pertaining to claim 7, Adams teaches a method for producing the semiconductor nanoparticles according to claims 6 wherein the semiconductor nanoparticles are placed in an alkaline environment (as discussed above).

12. Pertaining to claim 8, Adams teaches a method for producing the semiconductor nanoparticles according to claims 6 wherein the semiconductor nanoparticles are allowed to react with an active hydrogen-containing compound in an alkaline environment.

13. Pertaining to claim 9, Adams teaches the method for producing semiconductor nanoparticles according to claim 7 wherein the alkaline environment is between pH 9 and pH 11 (column 2, line 21).

14. Pertaining to claim 10, Adams teaches the method for producing the semiconductor nanoparticles according to claims 6 wherein the semiconductor nanoparticles are subjected to surface modification and purification (concept of the whole invention).

15. Pertaining to claim 11, Adams teaches the method for producing semiconductor nanoparticles according to claim 10 wherein the surface modification is carried out using a thiol compound (please note that it is well known that a thiol compound is merely nothing more than an alcohol as disclosed in column 8, lines 1-9).

16. Pertaining to claim 12, Adams teaches the method for producing semiconductor nanoparticles according to claim 10 wherein the number of the layers of atoms equivalent to an oxide film is at least 0 in the surface modification of the semiconductor nanoparticles (the Examiner takes the position that since this is a product by process claim Adams meets all limitations of this claims since a TOPO process is incorporated).

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17. Pertaining to claim 13, Adams teaches fluorescence reagent comprising the semiconductor nanoparticles according to claim 1 (as discussed above).

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. David Coleman whose telephone number is 571-272-1856. The examiner can normally be reached on 9:00 AM-5:00 PM.

19. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

20. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



W. David Coleman
Primary Examiner
Art Unit 2823

WDC